REMARKS/ARGUMENTS

Claims 17-20 and 22-32 are active in the case. Reconsideration is respectfully requested.

The present invention relates to a process for producing flexible polyurethane foams from polyether alcohols based on renewable materials.

Claim Objection and Rejection, 35 USC 112

The Examiner objects to the so-called foreign test standard that is present in the claims which describes the specific steps which are followed in order to determine VOC and FOG values of flexible polyurethane foams of the invention, simply because the standard procedure referred to is said to be of foreign origin and therefore non-enabling of the present invention. This is manifestly incorrect. In the first place the document is written in English, not German. Specific steps are described as to how to determine VOC and FOG values so that the document provides at the very least a precise description of the methodology to be followed in order to determine these values. The steps of analysis to be followed leave nothing to guess-work. In fact, as stated on page 2, lines 30-34, the test method PB VWL 709 is an established commercial test method that has gained wide acceptance within the automobile industry.

Secondly, the document can not be said to be "foreign" because, at the very least, the Chrysler component of DaimlerChrysler is a former major U. S. automaker. Obviously, therefore, the procedures described in the document in question were known at the very least to workers of Chrysler in the American automobile industry. However, quite likely the disclosure of the standard test is well known to other automobile manufacturers in the U. S. beyond DaimlerChrysler. Further, there is nothing indefinite about the written standard so that one of skill in the art would be enabled by the disclosure of the document to obtain

needed VOC and FOG values for a flexible polyurethane foam. Withdrawal of the rejection is respectfully requested.

Claim Rejection, 35 USC 103

Claims 1-7 and 15-21 stand rejected based on 35 USC 103(a) as obvious over Sugiyama et al, U. S. Patent 6,313,060 in view of JP-05163342. This ground of rejection is respectfully traversed.

Applicants emphasize that as disclosed on page 2 of the specification, attempts have been made to produce flexible polyurethane foams from polyether alcohols that have been prepared from what is termed renewable raw materials such as castor oil. Basic catalysts such as sodium and potassium hydroxides and alkoxides have been used to facilitate the polyether alcohol forming reaction, but upon the formation of a foamed polyurethane product, the product exhibits very poor odor, fogging and emissions properties. For instance, when castor oil is employed as the initiator, considerable amounts of ricinoleic acid are formed. This ring containing material can only be removed incompletely by simple steam stripping. The polyether alcohol product and foams produced therefrom display unacceptable odor, fogging and emissions characteristics. The foams produced therefore are not commercially acceptable products. With regard to the use of castor oil specifically, as a renewable raw material, the result is a foamed polyurethane product contains substantial amounts of cyclic fatty esters which contribute unacceptably high VOC and FOG values.

Applicants now refer to the cited JP '342 reference. Here, the inventors addressed the problem accompanying the use of castor oil as an initiator for the preparation of polyether alcohols in which the use of an alkali catalyst known conventionally for this reaction resulted in the decomposition of the double bond in the material. On the other hand, when a Lewis acid catalyst is used for the reaction, the problem encountered there was that the amount of

polyether prepared was unsatisfactory. These problems with respect to polyether alcohol synthesis are solved in '342 for the specific reaction of castor oil and alkylene oxide by the use of a metallocyanide complex compound as the catalyst. It is to this problem that essentially all of the disclosure of '342 is directed. Only the briefest mention (general in nature) of the use of the specific polyether alcohol of the reference as the polyol for the preparation of polyurethane upon reaction with an isocyanate is provided at paragraph [0027]. Nothing is said in the reference about the problems of odor, FOG and VOC mentioned in the present invention. Nothing is said about the preparation of polyurethane foams. There is not the slightest teaching or suggestion that would lead one of skill in the art to expect that if a polyether alcohol, prepared by metallocyanide complex catalyzed reaction of castor oil with an alkylene oxide, is used in a reaction with a polyisocyanate to prepare a foamed polyurethane product, that the product obtained would not exhibit the odor, VOC and FOG characteristics which have been so prevalent with conventionally prepared foamed polyurethanes.

The cited Sugiyama et al patent does not overcome the deficiencies of the '342 reference. Sugiyama et al indeed discloses a method of preparing a resilient polyurethane foam material by reacting a polyisocyanate with a polyether alcohol which in turn is prepared by the catalyzed reaction of a monohydroxy initiator such as methanol, isopropyl alcohol, butanol or the like, or a polyhydroxy compound containing 2 to eight hydroxyl groups such as sorbitol, sucrose, pentaerythritol, or the like. Nowhere shown or suggested by the patent are the renewable raw materials of the present claims for use as the initiator component for reaction with a polyether alcohol. Not only that, there is no description of the problem faced in the particular area of preparing foamed polyurethanes from polyether alcohols in turn prepared from initiators of renewable raw materials, nor is there any suggestion that the problem elucidated on the record of VOC, FOG and odors emanating from conventional

polyurethane foams in turn prepared from polyether alcohols obtained from renewable raw materials can be eliminated.

Another aspect of the disclosure of the patent which mitigates against its combination with '342 is that the procedure of preparing a polyether polyol is more complex than either that of the present claims or the procedure of '342. That is, the patent deems it necessary in the preparation of a polyether alcohol, that if a metallocyanide complex is to be used as a catalyst for the preparation of the polyether alcohol, the initiator must be reacted with an alkylene oxide having a carbon atom content of at least 3 (see col 3, lines 46-52 or col 8, lines 5-20). By this definition, specifically, ethylene oxide is excluded as a reactant. If, however, ethylene oxide is to be employed also in the polyether forming reaction, **it must be done so using a conventional alkali metal hydroxide or alkoxide catalyst**. (See col 7, lines 49-55 and col 8, lines 5-20). No such conditions are imposed upon the polyether alcohol forming reaction of the present claims! Accordingly, it is clear that the combined documents do not obviate the present invention.

The Examiner is believed to err on the record when he states that the only difference between applicants' invention and that of Sugiyama et al is that the patent does not suggest renewable raw materials (page 3, last paragraph). This is not correct as can be seen from the discussion above. If a polyether alcohol is formed from an alkylene oxide having a carbon atom content of three of greater, then a metallocyanide complex may be used the catalyst for the reaction. If, on the other hand, ethylene oxide is to be used in the reaction, it must be separately done as a follow on to an initial alkylene oxide/initiator reaction, but catalyzed by a conventional alkali metal hydroxide or alkoxide catalyst. The obviousness ground of rejection is believed to have been obviated and withdrawal of the rejection is respectfully requested.

It is believed that the application is in proper condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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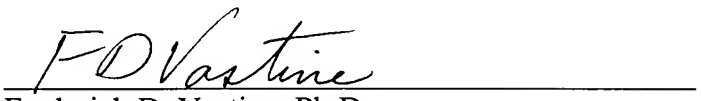

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